

AMENDMENTS

1. (Original) A process for the manufacture of phenolic compounds comprising:

a) separating a neutralized aralkyl hydroperoxide cleavage mass stream containing salts of neutralization into a crude ketone stream and a crude phenolic stream containing the salts of neutralization;

b) separating the crude phenolic stream into a concentrated phenolic-rich stream, enriched in phenolic compounds, and a crude phenolic bottoms stream enriched in tars and alpha methyl styrene dimers, each compared to the crude phenolic stream, said crude phenolic bottoms stream containing salts of neutralization;

GI c) to the crude phenolic bottoms stream, adding water and a diluent composition, thereby forming a phase separable crude phenolic bottoms stream, said diluent composition comprised of hydrocarbons phase compatible with the crude phenolic bottoms stream and having a combined density lower than the density of the crude phenolic bottoms stream;

d) separating the separable crude phenolic bottoms stream into a hydrocarbon phase and an aqueous phase containing salts of neutralization;

whereby the amount of salts of neutralization in the hydrocarbon phase is reduced compared to the amount of salts of neutralization present prior to separation.

2. (Original) The process of claim 1, wherein the weight ratio of diluent composition to crude phenolic bottoms stream is at least 0.15:1.

3. (Original) The process of claim 2, wherein the weight ratio of diluent composition to crude phenolic bottoms stream is at least 0.3:1.

4. (Original) The process of claim 1, wherein the volume ratio of water to crude phenolic bottoms stream is at least 1:1.

5. (Previously presented) The process of claim 1 wherein (c) comprises:

(i) adding the diluent composition to the crude phenolic bottoms stream thereby forming a diluted crude phenolic bottoms stream, and

(ii) subsequently mixing water with the diluted crude phenolic bottoms stream, thereby forming a separable crude phenolic bottoms stream.

6. (Original) The process of claim 5, wherein the ratio of diluent to crude phenolic bottoms stream is at least 0.3:1, and the volume ratio of water to diluted crude phenolic bottoms stream ranges from 1.5:1 to 3:1.

7. (Original) The process of claim 6, wherein the diluent composition comprises less than 20 wt.% of phenolic compounds.

8. (Original) The process of claim 7, wherein the diluent composition comprises cumene and α -methyl styrene.

9. (Original) The process of claim 6, further comprising:

(i) separating said crude ketone stream into a concentrated ketone-rich stream, enriched in ketone over the crude ketone stream, and a crude ketone bottoms stream;

(ii) feeding at least a portion of the crude ketone bottoms stream as said diluent composition to the crude phenolic bottoms stream in step c).

10. (Currently amended) The process of claim 9, further comprising feeding a portion of said crude ketone bottoms stream to a neutralization zone for neutralization of [[a]] an aralkyl hydroperoxide cleavage mass.

11. (Previously presented) The process of claim 6, wherein a portion of said aqueous phase in step d) is recirculated and used as the water in step (c)(ii), and a portion of the aqueous phase is purged as a salt water purge.

12. (Original) The process of claim 11, wherein the salt water purge contains at least 80 wt.% of salts present in the crude phenolic bottoms stream.

13. (Original) The process of claim 6, wherein at least 90% of the salts present in phase separable crude phenolic bottoms stream prior to separation are removed from said hydrocarbon phase.

14. (Original) The process of claim 1, wherein said separation in step d) is conducted in a phase separation vessel at a temperature above 110°C and a pressure sufficient to keep the separable crude phenolic bottoms stream in the liquid phase.

15. (Currently amended) The process of claim 1, further comprising:

[[c)] (e) separating said hydrocarbon phase into a light ends stream, enriched in phenolic compounds, and a tarry stream enriched in tars, said

tarry steam having a reduced amount of salts of neutralization relative to the crude phenolic stream.

16. (Previously presented) The process of claim 15, wherein at least a portion of said light ends stream is re-circulated to a neutralization zone in which an aralkyl hydroperoxide cleavage mass is neutralized.

17. (Currently amended) A process for the manufacture of phenolic compounds comprising wholly or partially neutralizing an aralkyl hydroperoxide cleavage mass containing an acid and having a pH of less than 6 in the neutralization zone, thereby forming an aqueous neutralized aralkyl hydroperoxide cleavage mass containing salts of neutralization, subsequently separating said aqueous neutralized aralkyl hydroperoxide cleavage mass into an aqueous stream and a neutralized aralkyl hydroperoxide cleavage mass stream containing a smaller amount of salts than in the aqueous stream, subsequently separating the aralkyl hydroperoxide cleavage mass into a crude ketone stream and a crude phenolic stream containing the salts, separating said crude acetone stream into a concentrated ketone rich stream and a crude ketone bottoms stream, separating said crude phenolic stream into a concentrated phenolic-rich stream and a crude phenolic bottoms stream, separating the crude phenolic bottoms stream into a light ends stream and a tarry stream containing an amount of salts reduced by at least 90% of the amount of salts contained in the crude phenolic bottoms stream, and recycling at least a portion of said crude ketone bottoms stream and at least a portion of said light ends stream as feeds to said aralkyl hydroperoxide cleavage mass, said aqueous neutralized aralkyl hydroperoxide cleavage mass, or to both.

18. (Original) The process of claim 17, wherein at least a portion of said crude ketone bottoms stream and at least a portion of said light ends stream are recycled to said aralkyl hydroperoxide cleavage mass prior to neutralization.

~~19.~~ [Claims 19-20 (canceled).]

~~19.~~ (Original) The process of claim 1, wherein all or a portion of the aqueous stream is purged as an aqueous purge stream from the process, and the total amount of the aqueous purge stream containing salts of neutralization is less than 5 parts by weight per hour based on 100 parts by weight per hour of the aralkyl hydroperoxide cleavage mass stream.

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~~22.~~ (Original) The process of claim ¹⁹~~21~~, wherein the net amount of aqueous purge stream discharged from the process is less than 1 part by weight per hour.

[Claims 23-124(canceled).]

~~21~~
~~125.~~ (Currently amended) A process for manufacturing phenolic compounds comprising feeding a wholly or partially neutralized aralkyl hydroperoxide cleavage mass containing salts of neutralization to a splitter, separating acetone and phenol from said cleavage mass in the splitter, leaving a crude phenol bottoms stream, feeding to a phase separation vessel a mixture comprising all or a portion of said crude phenol bottoms stream together with an organic diluent having a first density sufficiently less than a second density of said phenol bottoms stream to ~~attract~~ phase separate phenol from said mixture into an organic phase comprising said diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from 0.45:1 to 0.6:1, allowing said mixture to phase separate, and recovering said phenolic compounds in said organic phase, wherein at least 80 wt.% of said salts of neutralization are removed in one or more aqueous streams and wherein said first density is at least about 2 pcf less than said second density.

~~22~~
~~126.~~ (Currently amended) A process for manufacturing phenolic compounds comprising feeding a wholly or partially neutralized aralkyl hydroperoxide cleavage mass containing salts of neutralization to a splitter, separating acetone and phenol from said cleavage mass in the splitter, leaving a crude phenol bottoms stream, feeding to a phase separation vessel a mixture comprising all or a portion of said crude phenol bottoms stream together with an organic diluent having a first density sufficiently less than a second density of said phenol bottoms stream to ~~attract~~ phase separate phenol from said mixture into an organic phase comprising said diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from 0.45:1, allowing said mixture to phase separate, and recovering said phenolic compounds in said organic phase, wherein at least 80 wt.% of said salts of neutralization are removed in one or more aqueous streams and wherein said first density is at least about 2 pcf less than said second density.

~~23~~
~~127.~~ (Currently amended) A process for manufacturing phenolic compounds comprising feeding a wholly or partially neutralized aralkyl hydroperoxide cleavage mass containing salts of neutralization to a splitter, separating acetone and phenol from said cleavage mass in the splitter, leaving a crude phenol bottoms stream, feeding to a phase

separation vessel a mixture comprising all or a portion of said crude phenol bottoms stream together with an organic diluent having a first density sufficiently less than a second density of said phenol bottoms stream to ~~attract~~ phase separate phenol from said mixture into an organic phase comprising said diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.3:1, allowing said mixture to phase separate, and recovering said phenolic compounds in said organic phase, wherein at least 80 wt.% of said salts of neutralization are removed in one or more aqueous streams and wherein said first density is at least about 2 pcf less than said second density.

G1 ~~128~~ (Currently amended) A process for manufacturing phenolic compounds comprising feeding a wholly or partially neutralized aralkyl hydroperoxide cleavage mass containing salts of neutralization to a splitter, separating acetone and phenol from said cleavage mass in the splitter, leaving a crude phenol bottoms stream, feeding to a phase separation vessel a mixture comprising all or a portion of said crude phenol bottoms stream together with an organic diluent having a first density sufficiently less than a second density of said phenol bottoms stream to ~~attract~~ phase separate phenol from said mixture into an organic phase comprising said diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.15:1, allowing said mixture to phase separate, and recovering said phenolic compounds in said organic phase, wherein at least 80 wt.% of said salts of neutralization are removed in one or more aqueous streams and wherein said first density is at least about 2 pcf less than said second density.

[Claims 129-155 (canceled).]

~~156~~ (Currently amended) A process for manufacturing phenolic compounds comprising:

means for separating a neutralized aralkyl hydroperoxide cleavage mass stream comprising salts of neutralization to produce a crude phenolic stream comprising said salts of neutralization;

means for separating said crude phenolic stream to produce a concentrated phenolic-rich stream and a crude phenolic bottoms stream comprising said salts of neutralization and a remainder of said phenolic compounds;

means for phase separating at least a portion of said remainder of said phenolic compounds from said crude phenolic bottoms stream into an organic phase

comprising an organic diluent, said means comprising treating said a crude phenolic bottoms stream with a first quantity of water and with a second quantity of said organic diluent.

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~~157.~~ (Previously presented) The method of claim ~~156~~²⁵ wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to said crude phenolic bottoms stream of from 0.45 to 0.6:1.

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~~158.~~ (Previously presented) The method of claim ~~156~~²⁵ wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to said crude phenolic bottoms stream of at least 0.3:1.

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~~159.~~ (Previously presented) The method of claim ~~156~~²⁵ wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.15:1.

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~~160.~~ (Previously presented) The method of claim ~~156~~²⁵ wherein said means for producing a crude phenol bottoms stream comprises producing a partially or wholly neutralized aralkyl hydroperoxide cleavage mass, and at least 80 wt.% of the salts of neutralization present in said partially or wholly neutralized aralkyl hydroperoxide cleavage mass are removed through one or more aqueous streams.

³⁰
~~161.~~ (Previously presented) The method of claim ~~156~~²⁵ wherein said means for producing a crude phenol bottoms stream comprises producing a partially or wholly neutralized aralkyl hydroperoxide cleavage mass, and removing at least 90 wt.% of the salts of neutralization present in said partially or wholly neutralized aralkyl hydroperoxide cleavage mass through one or more aqueous streams.

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~~162.~~ (Previously presented) The method of claim ~~157~~²⁶ wherein said means for producing a crude phenol bottoms stream comprises producing a partially or wholly neutralized aralkyl hydroperoxide cleavage mass, and removing at least 80 wt.% of the salts of neutralization present in said partially or wholly neutralized aralkyl hydroperoxide cleavage mass through one or more aqueous streams.

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~~163.~~ (Previously presented) The method of claim ~~157~~²⁶ wherein said means for producing a crude phenol bottoms stream comprises producing a partially or wholly neutralized aralkyl hydroperoxide cleavage mass, and removing at least 90 wt.% of the

salts of neutralization present in said partially or wholly neutralized aralkyl hydroperoxide cleavage mass through one or more aqueous streams.

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~~164~~ (Previously presented) The method of claim ~~158~~²⁷ wherein said means for producing a crude phenol bottoms stream comprises producing a partially or wholly neutralized aralkyl hydroperoxide cleavage mass, and removing at least 80 wt.% of the salts of neutralization present in said partially or wholly neutralized aralkyl hydroperoxide cleavage mass through one or more aqueous streams.

³⁴
~~165~~ (Previously presented) The method of claim ~~158~~²⁷ wherein said means for producing a crude phenol bottoms stream comprises producing a partially or wholly neutralized aralkyl hydroperoxide cleavage mass, and removing at least 90 wt.% of the salts of neutralization present in said partially or wholly neutralized aralkyl hydroperoxide cleavage mass through one or more aqueous streams.

G1 ³⁵
~~166~~ (Previously presented) The method of claim ~~159~~²⁸ wherein said means for producing a crude phenol bottoms stream comprises producing a partially or wholly neutralized aralkyl hydroperoxide cleavage mass, and removing at least 80 wt.% of the salts of neutralization present in said partially or wholly neutralized aralkyl hydroperoxide cleavage mass through one or more aqueous streams.

³⁶
~~167~~ (Previously presented) The method of claim ~~159~~²⁸ wherein said means for producing a crude phenol bottoms stream comprises producing a partially or wholly neutralized aralkyl hydroperoxide cleavage mass, and removing at least 90 wt.% of the salts of neutralization present in said partially or wholly neutralized aralkyl hydroperoxide cleavage mass through one or more aqueous streams.

³⁷
~~168~~ (Currently amended) A process for manufacturing phenolic compounds comprising:

- separating acetone and phenol from a wholly or partially neutralized aralkyl hydroperoxide cleavage mass comprising salts of neutralization to produce a crude phenolic stream comprising said salts of neutralization;
- separating said crude phenolic stream to produce a concentrated phenolic-rich stream and a crude phenol bottoms stream, said crude phenol bottoms stream comprising said salts of neutralization and a remainder of said phenolic compounds;

treating said crude phenol bottoms stream with a first quantity of aqueous material
water and with a second quantity of an organic diluent, said second
quantity being effective to solubilize said remainder of said phenolic
compounds, producing a mixture;

allowing said mixture to phase separate, recovering said phenolic compounds in

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~~169~~ an organic phase comprising said organic diluent.

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~~169~~ (Currently amended) The method of claim ~~168~~ wherein said organic
diluent has a first density sufficiently less than a second density of phenol to ~~attract~~ phase
separate said remainder of said phenolic compounds from said mixture into an organic
phase comprising said organic diluent.

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~~170~~ (Previously presented) The method of claim ~~168~~ wherein said first density
is at least about 1 pcf less than said second density.

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~~171~~ (Previously presented) The method of claim ~~168~~ wherein said first density
is at least about 2 pcf less than said second density.

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~~172~~ (Previously presented) The method of claim ~~168~~ wherein said organic
diluent comprises a combined hydrocarbon density of from about 51 to about 53.5 pcf.

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~~173~~ (Previously presented) The method of claim ~~168~~ wherein said organic
diluent comprises from about 60 to about 90 wt.% cumene, from about 10 to about 30
wt.% AMS, and less than 10 wt.% other hydrocarbons.

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~~174~~ (Previously presented) The method of claim ~~172~~ wherein said organic
diluent comprises from about 60 to about 90 wt.% cumene, from about 10 to about 30
wt.% AMS, and less than 10 wt.% other hydrocarbons.

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~~175~~ (Previously presented) The method of claim ~~168~~ further comprising
removing at least 80 wt.% of the salts of neutralization in one or more aqueous streams.

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~~176~~ (Previously presented) The method of claim ~~169~~ further comprising
removing at least 80 wt.% of the salts of neutralization in one or more aqueous streams.

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~~177~~ (Previously presented) The method of claim ~~170~~ further comprising
removing at least 80 wt.% of the salts of neutralization in one or more aqueous streams.

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~~178~~ (Previously presented) The method of claim ~~171~~ further comprising
removing at least 80 wt.% of the salts of neutralization in one or more aqueous streams.

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~~179~~. (Previously presented) The method of claim ~~172~~⁴¹ further comprising removing at least 80 wt.% of the salts of neutralization in one or more aqueous streams.

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~~180~~. (Previously presented) The method of claim ~~173~~⁴² further comprising removing at least 80 wt.% of the salts of neutralization in one or more aqueous streams.

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~~181~~. (Previously presented) The method of claim ~~174~~⁴³ further comprising removing at least 80 wt.% of the salts of neutralization in one or more aqueous streams.

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~~182~~. (Previously presented) The method of claim ~~168~~³⁷ further comprising removing at least 90 wt.% of the salts of neutralization in one or more aqueous streams.

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~~183~~. (Previously presented) The method of claim ~~169~~³⁸ further comprising removing at least 90 wt.% of the salts of neutralization in one or more aqueous streams.

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~~184~~. (Previously presented) The method of claim ~~170~~³⁹ further comprising removing at least 90 wt.% of the salts of neutralization in one or more aqueous streams.

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~~185~~. (Previously presented) The method of claim ~~171~~⁴⁰ further comprising removing at least 90 wt.% of the salts of neutralization in one or more aqueous streams.

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~~186~~. (Previously presented) The method of claim ~~172~~⁴¹ further comprising removing at least 90 wt.% of the salts of neutralization in one or more aqueous streams.

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~~187~~. (Previously presented) The method of claim ~~173~~⁴² further comprising removing at least 90 wt.% of the salts of neutralization in one or more aqueous streams.

~~57~~
~~188~~. (Previously presented) The method of claim ~~174~~⁴³ further comprising removing at least 90 wt.% of the salts of neutralization in one or more aqueous streams.

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~~189~~. (Previously presented) The method of claim ~~168~~³⁷ wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from about 0.45:1 to about 0.6:1.

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~~190~~. (Previously presented) The method of claim ~~168~~³⁷ wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.3:1.

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~~191~~. (Previously presented) The method of claim ~~169~~³⁸ wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from about 0.45:1 to about 0.6:1.

~~192~~⁶¹ (Previously presented) The method of claim ~~169~~³⁸ wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.3:1.

~~193~~⁶² (Previously presented) The method of claim ~~170~~³⁹ wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from about 0.45:1 to about 0.6:1.

~~194~~⁶³ (Previously presented) The method of claim ~~170~~³⁹ wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.3:1.

~~195~~⁶⁴ (Previously presented) The method of claim ~~171~~⁴⁰ wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from about 0.45:1 to about 0.6:1.

~~196~~⁶⁵ (Previously presented) The method of claim ~~171~~⁴⁰ wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.3:1.

~~197~~⁶⁶ (Previously presented) The method of claim ~~172~~⁴¹ wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from about 0.45:1 to about 0.6:1.

~~198~~⁶⁷ (Previously presented) The method of claim ~~172~~⁴¹ wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.3:1.

~~199~~⁶⁸ (Previously presented) The method of claim ~~173~~⁴² wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from about 0.45:1 to about 0.6:1.

~~200~~⁶⁹ (Previously presented) The method of claim ~~173~~⁴² wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.3:1.

~~201~~⁷⁰ (Previously presented) The method of claim ~~174~~⁴³ wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from about 0.45:1 to about 0.6:1.

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202. (Previously presented) The method of claim ⁴³~~174~~ wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.3:1.

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203. (Previously presented) The method of claim ⁵⁹~~188~~ wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from about 0.45:1 to about 0.6:1.

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204. (Previously presented) The method of claim ⁵⁷~~188~~ wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.3:1.

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205. (Currently amended) A process for manufacturing phenolic compounds comprising:

- separating acetone and phenol from a wholly or partially neutralized aralkyl hydroperoxide cleavage mass comprising salts of neutralization to produce a crude phenolic stream comprising said salts of neutralization;
- separating said crude phenolic stream to produce a concentrated phenolic-rich stream and a crude phenol bottoms stream, said crude phenol bottoms stream comprising said salts of neutralization and a remainder of said phenolic compounds;
- treating said crude phenol bottoms stream with a first quantity of aqueous material water and with a second quantity of an organic diluent, said second quantity being effective to solubilize said remainder of said phenolic compounds to produce a mixture, wherein a weight ratio of said organic diluent to said crude phenolic bottoms stream is at least 0.15:1;
- allowing said mixture to phase separate, recovering said phenolic compounds in

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an organic phase comprising said organic diluent.

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206. (Currently amended) The method of claim ~~205~~ wherein said organic diluent has a first density sufficiently less than a second density of phenol to ~~attract~~ phase separate said remainder of said phenolic compounds from said mixture into an organic phase comprising said organic diluent.

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207. (Previously presented) The method of claim ⁷⁴~~205~~ wherein said first density is at least about 1 pcf less than said second density.

~~208~~⁷⁷ (Previously presented) The method of claim ~~205~~⁷⁴ wherein said first density is at least about 2 pcf less than said second density.

~~209~~⁷⁸ (Previously presented) The method of claim ~~205~~⁷⁴ wherein said organic diluent comprises a combined hydrocarbon density of from about 51 to about 53.5 pcf.

~~210~~⁷⁹ (Previously presented) The method of claim ~~205~~⁷⁴ wherein said organic diluent comprises from about 60 to about 90 wt.% cumene, from about 10 to about 30 wt.% AMS, and less than 10 wt.% other hydrocarbons.

~~211~~⁸⁰ (Previously presented) The method of claim ~~209~~⁷⁸ wherein said organic diluent comprises from about 60 to about 90 wt.% cumene, from about 10 to about 30 wt.% AMS, and less than 10 wt.% other hydrocarbons.

~~212~~⁸¹ (Previously presented) The method of claim ~~205~~⁷⁴ further comprising removing at least 80 wt.% of the salts of neutralization in one or more aqueous streams.

~~213~~⁸² (Previously presented) The method of claim ~~205~~⁷⁵ further comprising removing at least 80 wt.% of the salts of neutralization in one or more aqueous streams.

~~214~~⁸³ (Previously presented) The method of claim ~~207~~⁷⁶ further comprising removing at least 80 wt.% of the salts of neutralization in one or more aqueous streams.

~~215~~⁸⁴ (Previously presented) The method of claim ~~208~~⁷⁷ further comprising removing at least 80 wt.% of the salts of neutralization in one or more aqueous streams.

~~216~~⁸⁵ (Previously presented) The method of claim ~~209~~⁷⁸ further comprising removing at least 80 wt.% of the salts of neutralization in one or more aqueous streams.

~~217~~⁸⁶ (Previously presented) The method of claim ~~210~~⁷⁹ further comprising removing at least 80 wt.% of the salts of neutralization in one or more aqueous streams.

~~218~~⁸⁷ (Previously presented) The method of claim ~~211~~⁸⁰ further comprising removing at least 80 wt.% of the salts of neutralization in one or more aqueous streams.

~~219~~⁸⁸ (Previously presented) The method of claim ~~205~~⁷⁴ further comprising removing at least 90 wt.% of the salts of neutralization in one or more aqueous streams.

~~220~~⁸⁹ (Previously presented) The method of claim ~~206~~⁷⁵ further comprising removing at least 90 wt.% of the salts of neutralization in one or more aqueous streams.

~~221~~⁹⁰ (Previously presented) The method of claim ~~207~~⁷⁶ further comprising removing at least 90 wt.% of the salts of neutralization in one or more aqueous streams.

~~222~~⁹¹ (Previously presented) The method of claim ~~208~~⁷⁷ further comprising removing at least 90 wt.% of the salts of neutralization in one or more aqueous streams.

~~223~~⁹² (Previously presented) The method of claim ~~209~~⁷⁸ further comprising removing at least 90 wt.% of the salts of neutralization in one or more aqueous streams.

~~224~~⁹³ (Previously presented) The method of claim ~~210~~⁷⁹ further comprising removing at least 90 wt.% of the salts of neutralization in one or more aqueous streams.

~~225~~⁹⁴ (Previously presented) The method of claim ~~211~~⁸⁰ further comprising removing at least 90 wt.% of the salts of neutralization in one or more aqueous streams.

~~226~~⁹⁵ (Currently amended) A process for manufacturing phenolic compounds comprising:

separating acetone and phenol from a wholly or partially neutralized aralkyl hydroperoxide cleavage mass comprising salts of neutralization to produce a crude phenolic stream comprising said salts of neutralization;

separating said crude phenolic stream to produce a concentrated phenolic-rich stream and a crude phenol bottoms stream, said crude phenol bottoms stream comprising said salts of neutralization and a remainder of said phenolic compounds;

treating said crude phenol bottoms stream with a first quantity of aqueous material water and a second quantity of an organic diluent, said second quantity being effective to solubilize said remainder of said phenolic compounds producing a mixture, wherein said organic diluent has a first density sufficiently less than a second density of phenol to phase separate said remainder of said phenolic compounds from said mixture into an organic phase comprising said organic diluent;

allowing said mixture to phase separate to produce an organic phase comprising said phenolic compounds and said organic diluent.

~~227~~⁹⁶ (Previously presented) The method of claim ~~226~~⁹⁵ further comprising recovering said phenolic compounds from said organic phase.

~~228~~⁹⁷ (Previously presented) The method of claim ~~227~~⁹⁶ wherein said first density is at least about 1 pcf less than said second density.

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~~229~~ (Previously presented) The method of claim ~~227~~⁹⁶ wherein said first density is at least about 2 pcf less than said second density.

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~~230~~ (Previously presented) The method of claim ~~228~~⁹⁷ wherein said organic diluent comprises a combined hydrocarbon density of from about 51 to about 53.5 pcf.

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~~231~~ (Previously presented) The method of claim ~~228~~⁹⁷ wherein said organic diluent comprises from about 60 to about 90 wt.% cumene, from about 10 to about 30 wt.% AMS, and less than 10 wt.% other hydrocarbons.

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~~232~~ (Previously presented) The method of claim ~~230~~⁹⁹ wherein said organic diluent comprises from about 60 to about 90 wt.% cumene, from about 10 to about 30 wt.% AMS, and less than 10 wt.% other hydrocarbons.

¹⁰²
~~233~~ (Previously presented) The method of claim ~~227~~⁹⁶ wherein at least 80 wt.% of said salts of neutralization are removed in one or more aqueous streams.

¹⁰³
~~234~~ (Previously presented) The method of claim ~~228~~⁹⁷ wherein at least 80 wt.% of said salts of neutralization are removed in one or more aqueous streams.

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~~235~~ (Previously presented) The method of claim ~~228~~⁹⁸ wherein at least 80 wt.% of said salts of neutralization are removed in one or more aqueous streams.

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~~236~~ (Previously presented) The method of claim ~~230~~⁹⁹ wherein at least 80 wt.% of said salts of neutralization are removed in one or more aqueous streams.

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~~237~~ (Previously presented) The method of claim ~~231~~¹⁰⁰ wherein at least 80 wt.% of said salts of neutralization are removed in one or more aqueous streams.

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~~238~~ (Previously presented) The method of claim ~~232~~¹⁰¹ wherein at least 80 wt.% of said salts of neutralization are removed in one or more aqueous streams.

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~~239~~ (Previously presented) The method of claim ~~227~~⁹⁶ wherein at least 90 wt.% of said salts of neutralization are removed in one or more aqueous streams.

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~~240~~ (Previously presented) The method of claim ~~228~~⁹⁷ wherein at least 90 wt.% of said salts of neutralization are removed in one or more aqueous streams.

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~~241~~ (Previously presented) The method of claim ~~229~~⁹⁸ wherein at least 90 wt.% of said salts of neutralization are removed in one or more aqueous streams.

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~~242~~ (Previously presented) The method of claim ~~230~~⁹⁹ wherein at least 90 wt.% of said salts of neutralization are removed in one or more aqueous streams.

¹¹²
~~243.~~ (Previously presented) The method of claim ~~231~~¹⁰⁰ wherein at least 90 wt.% of said salts of neutralization are removed in one or more aqueous streams.

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~~244.~~ (Previously presented) The method of claim ~~232~~¹⁰¹ wherein at least 90 wt.% of said salts of neutralization are removed in one or more aqueous streams.

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~~245.~~ (Previously presented) The method of claim ~~227~~⁹⁶ wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from 0.45 to 0.6:1.

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~~246.~~ (Previously presented) The method of claim ~~227~~⁹⁶ wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.3:1.

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~~247.~~ (Previously presented) The method of claim ~~227~~⁹⁶ wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.15:1.

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~~248.~~ (Previously presented) The method of claim ~~228~~⁹⁷ wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from 0.45 to 0.6:1.

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~~249.~~ (Previously presented) The method of claim ~~228~~⁹⁷ wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.15:1.

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~~250.~~ (Previously presented) The method of claim ~~229~~⁹⁸ wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from 0.45:1 to 0.6:1.

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~~251.~~ (Previously presented) The method of claim ~~229~~⁹⁸ wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.15:1.

¹²¹
~~252.~~ (Previously presented) The method of claim ~~230~~⁹⁹ wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from 0.45:1 to 0.6:1.

¹²²
~~253.~~ (Previously presented) The method of claim ~~230~~⁹⁹ wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.15:1.

¹²³
~~254.~~ (Previously presented) The method of claim ~~231~~¹⁰⁰ wherein said organic phase comprises¹ an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from 0.45:1 to 0.6:1.

¹²⁴
~~255.~~ (Previously presented) The method of claim ~~231~~¹⁰⁰ wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.15:1.

¹²⁵
~~256.~~ (Previously presented) The method of claim ~~232~~¹⁰¹ wherein said organic phase comprises¹ an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from 0.45:1 to 0.6:1.

¹²⁶
~~257.~~ (Previously presented) The method of claim ~~232~~¹⁰¹ wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.15:1.

¹²⁷
~~258.~~ (Previously presented) The method of claim ~~244~~¹¹³ wherein said organic phase comprises¹ an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from 0.45:1 to 0.6:1.

¹²⁸
~~259.~~ (Previously presented) The method of claim ~~244~~¹¹³ wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.15:1.
